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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,437	02/10/2004	Jagrut V. Patel	030222	2918

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QUALCOMM INCORPORATED
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

EXAMINER	
HUANG, WEN WU	
ART UNIT	**PAPER NUMBER**
2618	

NOTIFICATION DATE	DELIVERY MODE
04/08/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com
kascanla@qualcomm.com
nanm@qualcomm.com

Office Action Summary	Application No.	Applicant(s)	
	10/776,437	PATEL ET AL.	
	Examiner	Art Unit	
	WEN W. HUANG	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-15,30-33,37-39 and 41-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-15,30-33,37-39 and 41-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 11-15, 30-33, 37-39 and 41-47 are pending.

Response to Amendment

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 11-13, 15, 30-33, 37-39, 41-44, 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choo (US. 6,452,362 B1) in view of Olson (US. 6,727,602 B2) and Nishihara et al. (US. 6,522,902 B2; hereinafter "Nishihara").

Regarding **claim 11**, Olson teaches a power source (see Choo, fig. 1, battery control circuit 60), comprising:

first and second batteries (see Choo, fig. 1, 1st battery 20 and 2nd battery 30);

means for operating each of the first and second batteries while supplying continuous current to a load (see Choo, fig. 1, switches 51, 53 and 55, main circuit 5) when no voltage differential exists between the first and second batteries (see Choo, fig. 3, S145, col. 9, lines 27-31);

means for continuously coupling the first and second batteries to the load (see Choo, fig. 1, switches 51, 53 and 55, main circuit 5, col. 9, lines 31-35) when no voltage differential exists between the first and second batteries (see Choo, fig. 3, S145, col. 9, lines 27-31);and

means for continuously coupling the battery with a greater voltage to the load when a voltage differential exists between the first and second batteries (see Choo, fig. 3, S130, S140, col. 9, lines 15-25).

Choo is silent to teaching that comprising:

means for operating in a pulse current discharge mode when a current required by the load exceeds a threshold; and

means for continuously coupling the first and second batteries to the load when the current required by the load is below the threshold.

However, the claimed limitation is well known in the art as evidenced by Olson and Nishihara.

In the same field of endeavor, Olson teaches a power source comprising:

means for (see Olson, fig. 1, power controller 108) operating each of the first and second batteries in a pulse current discharge mode (see Olson, col. 5, lines 29-36; alternating fashion; col. 9, lines 58-63) while supplying continuous current to a load (see

Olson, fig. 1, load 107, col. 5, lines 3-8; col. 9, lines 8-13) when no voltage differential exists between the first and second batteries (see Olson, col. 5, lines 53-55; discharging battery 101 and 104 evenly) and when a current required by the load exceeds a threshold (see Olson, col. 10, lines 35-45) (see Olson, col. 9, lines 8-10, measured load voltage (Vdd); col. 3, lines 38-40 and 47-52; load demand (R) of application circuit; measured current (I) = measured voltage (V) / known resistance (R), Ohm's law (I=V/R), col. 9, lines 8-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Choo with the teaching of Olson in order to more efficiently operate multiple batteries (see Olson, col. 2, lines 33-36).

The combination of Choo and Olson is silent to teaching that comprising:

means for continuously coupling the first and second batteries to the load when the current required by the load is below the threshold.

However, the claimed limitation is well known in the art as evidenced by Nishihara.

In the same field of endeavor, Nishihara teaches a power source (see Nishihara, fig. 2, battery pack 2) comprising

means for coupling the first and second batteries to the load (see Nishihara, col. 10, lines 22-33, battery cells 2a and 2b in parallel connection) when the current required by the load is below the threshold (see Nishihara, standby time; col. 12, lines 65-67, small current drain).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Choo and Olson with the teaching of Nishihara in order to extend battery life and improve power consumption (see Nishihara, col. 2, lines 35-43).

Regarding **claim 12**, the combination of Choo, Olson and Nishihara teaches the power source of claim 11 wherein the means for operating each of the first and second batteries in a pulse discharge mode comprises a first switch configured to intermittently couple to the first battery to the load, a second switch configured to intermittently coupled the second battery to the load (see Olson, fig. 1, controlled power switches 103 and 106; col. 9, liens 58-63), and means for controlling the first and second switches (see Olson, fig. 3, Vp and Vn, col. 9, lines 24-31).

Regarding **claim 13**, the combination of Choo, Olson and Nishihara teaches the power source of claim 12 wherein the means for operating each of the first and second batteries in a pulse discharge mode further comprises means for measuring the current supplied to the lad, the means for controlling the first and second switches being responsive to the measured current (see Olson, col. 9, lines 8-10, measured load voltage (Vdd); col. 3, lines 38-40 and 47-52; load demand (R) of application circuit; measured current (I) = measured voltage (V) / known resistance (R), Ohm's law (I=V/R), col. 9, lines 8-13),

Regarding **claim 15**, the combination of Choo, Olson and Nishihara further teaches the power source of claim 12 wherein the means for controlling the first and second switches is responsive to voltage measured at each of the first (see Olson, col. 5, lines 47-55).

Regarding **claim 30**, Choo teaches a wireless communications device (see Choo, col. 1, line 24, mobile phone), comprising:

a processor configured to support wireless communications (see Choo, fig. 1, main circuit 5);

first and second batteries (see Choo, fig. 1, 1st battery 20 and 2nd battery 30);

a power management module configured to operate each of the first and second batteries while supplying continuous current to the processor (see Choo, fig. 1, switches 51, 53 and 55, main circuit 5) when no voltage differential exists between the first and second batteries (see Choo, fig. 3, S145, col. 9, lines 27-31);

wherein the power management module is further configured to continuously couple the first and second batteries to the processor (see Choo, fig. 1, switches 51, 53 and 55, main circuit 5, col. 9, lines 31-35) when no voltage differential exists between the first and second batteries (see Choo, fig. 3, S145, col. 9, lines 27-31);and

wherein the power management module is further configured to continuously couple the battery with a greater voltage to the processor when a voltage differential exists between the first and second batteries (see Choo, fig. 3, S130, S140, col. 9, lines 15-25).

Choo is silent to teaching that comprising:

the processor being further configured to operate in a traffic state or an idle state;

a power management module configured to operate in a pulse current discharge mode when the wireless communications device is in the traffic state; and

wherein the power management module is further configured to continuously couple the first and second batteries to the load when the wireless communications device is in the idle state.

However, the claimed limitation is well known in the art as evidenced by Olson and Nishihara.

In the same field of endeavor, Olson teaches a wireless communications device (see Olson, col. 2, lines 35-37) comprising:

the processor being further configured to operate in a traffic state or an idle state (see Olson, col. 3, lines 45-49; standby and active states);

a power management module configured to operate (see Olson, fig. 1, power controller 108) each of the first and second batteries in a pulse current discharge mode (see Olson, col. 5, lines 29-36; alternating fashion; col. 9, lines 58-63) while supplying continuous current to a load (see Olson, fig. 1, load 107, col. 5, lines 3-8; col. 9, lines 8-13) when no voltage differential exists between the first and second batteries (see Olson, col. 5, lines 53-55; discharging battery 101 and 104 evenly) and when the wireless communications device is in the traffic state (see Olson, col. 10, lines 35-45) (see Olson, col. 9, lines 8-10, measured load voltage (Vdd); col. 3, lines 38-40 and 47-

52; load demand (R) of application circuit; measured current (I) = measured voltage (V) / known resistance (R), Ohm's law (I=V/R), col. 9, lines 8-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Choo with the teaching of Olson in order to more efficiently operate multiple batteries (see Olson, col. 2, lines 33-36).

The combination of Choo and Olson is silent to teaching that comprising:

wherein the power management module is further configured to continuously couple the first and second batteries to the load when the wireless communications device is in the idle state.

However, the claimed limitation is well known in the art as evidenced by Nishihara.

In the same field of endeavor, Nishihara teaches a wireless communications device (see Nishihara, col. 1, lines 26, portable telephone) comprising

wherein the power management module is further configured to continuously couple the first and second batteries to the load when the wireless communications device is in the idle state

wherein the power management module is further configured to continuously couple the first and second batteries to the load (see Nishihara, col. 10, lines 22-33, battery cells 2a and 2b in parallel connection) when the wireless communications device is in the idle state (see Nishihara, standby time; col. 12, lines 65-67, small current drain).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Choo and Olson with the teaching of Nishihara in order to extend battery life and improve power consumption (see Nishihara, col. 2, lines 35-43).

Regarding **claim 31**, the combination of Choo, Olson and Nishihara also teaches the wireless communications device of claim 30, wherein the power management module comprises a switch control module (see Olson, fig. 3, Vp and Vn, col. 9, lines 24-31), and a switch configured to intermittently couple the first and second batteries to the processor under control of the switch control module (see Olson, fig. 1, switches 103 and 106; col. 9, lines 58-63).

Regarding **claim 32**, the combination of Choo, Olson and Nishihara also teaches the wireless communications device of claim 31, wherein the switch comprises a first switch configured to intermittently couple the first battery to the processor under control of the switch control module (see Olson, fig. 1, switch 103), and a second switch configured to intermittently couple the second battery to the processor under control of the switch control module (see Olson, fig. 1, switch 106).

Regarding **claim 33**, the combination of Choo, Olson and Nishihara also teaches the wireless communications device of claim 32, wherein the first and second switches, each comprises a field effect transistor (see Olson, fig. 2, col. 7, lines 40-45).

Regarding **claim 37**, the combination of Choo, Olson and Nishihara teaches the wireless communications device of claim 30 wherein the power control module is further configured to determine the processor state as a function of the current supplied to the processor (see Olson, col. 9, lines 8-10, measured load voltage (Vdd); col. 3, lines 38-40 and 47-52; load demand (R) of application circuit in standby state and active state; measured current (I) = measured voltage (V) / known resistance (R), Ohm's law (I=V/R), col. 9, lines 8-13),

Regarding **claim 38**, the combination of Choo, Olson and Nishihara teaches the wireless communication device of claim 30 wherein the switch control module is further configured to control the switch as a function of voltage measured at each of the first and second batteries (see Olson, col. 5, lines 47-55).

Regarding **claim 39**, the combination of Choo, Olson and Nishihara teaches the wireless communication device of claim 38, wherein the selection module is further configured to control the switch to couple one of the first and second batteries having the highest voltage to the load (see Choo, fig. 3, S125 and S135, col. 9, lines 15-25).

Regarding **claim 41**, Choo teaches a power source (see Choo, fig. 1, battery control circuit 60), comprising:

first and second batteries (see Choo, fig. 1, 1st battery 20 and 2nd battery 30);

a power management module configured to operate each of the first and second batteries while supplying continuous current to a load (see Choo, fig. 1, switches 51, 53 and 55, main circuit 5) when no voltage differential exists between the first and second batteries (see Choo, fig. 3, S145, col. 9, lines 27-31);

wherein the power management module is further configured to continuously couple the first and second batteries to the load (see Choo, fig. 1, switches 51, 53 and 55, main circuit 5, col. 9, lines 31-35) when no voltage differential exists between the first and second batteries (see Choo, fig. 3, S145, col. 9, lines 27-31);and

wherein the power management module is further configured to continuously couple the battery with a greater voltage to the load when a voltage differential exists between the first and second batteries (see Choo, fig. 3, S130, S140, col. 9, lines 15-25).

Choo is silent to teaching that comprising:

a power management module configured to operate in a pulse current discharge mode when a current required by the load exceeds a threshold; and

wherein the power management module is further configured to continuously couple the first and second batteries to the load when the current required by the load is below the threshold.

However, the claimed limitation is well known in the art as evidenced by Olson and Nishihara.

In the same field of endeavor, Olson teaches a power source comprising:

a power management module configured to operate (see Olson, fig. 1, power controller 108) each of the first and second batteries in a pulse current discharge mode (see Olson, col. 5, lines 29-36; alternating fashion; col. 9, lines 58-63) while supplying continuous current to a load (see Olson, fig. 1, load 107, col. 5, lines 3-8; col. 9, lines 8-13) when no voltage differential exists between the first and second batteries (see Olson, col. 5, lines 53-55; discharging battery 101 and 104 evenly) and when a current required by the load exceeds a threshold (see Olson, col. 10, lines 35-45) (see Olson, col. 9, lines 8-10, measured load voltage (Vdd); col. 3, lines 38-40 and 47-52; load demand (R) of application circuit; measured current (I) = measured voltage (V) / known resistance (R), Ohm's law (I=V/R), col. 9, lines 8-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Choo with the teaching of Olson in order to more efficiently operate multiple batteries (see Olson, col. 2, lines 33-36).

The combination of Choo and Olson is silent to teaching that

wherein the power management module is further configured to continuously couple the first and second batteries to the load when the current required by the load is below the threshold.

However, the claimed limitation is well known in the art as evidenced by Nishihara.

In the same field of endeavor, Nishihara teaches a power source (see Nishihara, fig. 2, battery pack 2) comprising

wherein the power management module is further configured to continuously couple the first and second batteries to the load (see Nishihara, col. 10, lines 22-33, battery cells 2a and 2b in parallel connection) when the current required by the load is below the threshold (see Nishihara, standby time; col. 12, lines 65-67, small current drain).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Choo and Olson with the teaching of Nishihara in order to extend battery life and improve power consumption (see Nishihara, col. 2, lines 35-43).

Regarding **claims 42-44, 46 and 47**, the dependent claims are interpreted and rejected for the same reasons as set forth above in claims 31-33, 38 and 39, respectively.

2. Claim 14 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choo, Olson and Nishihara as applied to claims 12 and 42 above, and further in view of Kitagawa (US. 6,624,613 B2)..

Regarding **claim 14,** the combination of Choo, Olson and Nishihara teaches the power source of claim 12.

The combination of Choo, Olson and Nishihara is silent to teaching that wherein the means for controlling the first and second switches is configured to couple the first

battery to the load before removing the second battery from the load. However, the claimed limitation is well known in the art as evidenced by Kitagawa.

In the same field of endeavor, Kitagawa teaches the power source wherein the means for controlling the first and second switches is configured to couple the first battery to the load (see Kitagawa, fig. 36, component S21) before removing the second battery from the load (see Kitagawa, fig. 36, component S23 or S28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teaching of Choo, Olson and Nishihara with the teaching of Kitagawa in order to effectively use of parallel connected batteries and prevent damages of batteries (see Kitagawa, col. 1, lines 55-67)

Regarding **claim 45**, the dependent claim is interpreted and rejected for the same reasons as set forth above in claim 14.

Response to Arguments

Applicant's arguments with respect to claims 11, 30 and 41 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment of 3/5/09 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See

MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WEN W. HUANG whose telephone number is (571)272-7852. The examiner can normally be reached on 10am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/W. W. H./
Examiner, Art Unit 2618

/Matthew D. Anderson/

Supervisory Patent Examiner, Art Unit 2618